

Fifth Swiss EPR Projectathon

20–24th September 2021, Bern

Final Report



Introduction

This document provides summarized information about the fifth Swiss Projectathon on the Electronic Patient Record (“EPR Projectathon”) performed in September 2021. It contains the following sections:

Aims	2
Test organisation	2
General overview	2
Participating organisations	6
List of systems	7
Tests performed	8
Overall view	8
Peer-to-peer-tests	8
Group tests	9
Other results	9
Reported issues	9
Maturity levels	9
Quality survey	10
Conclusion	12

Aims

This year’s slogan for the EPR Projectathon was “Fit for #EPR”: The aim was to test further eMedication and mHealth specifications based on the updated FHIR profiles. A second goal of the testing event was to bring forward the more complicated EPR group tests. It allows supporting the ongoing rollout of the EPR and the maturity of the corresponding eHealth services (products). Apart from the **preparation support for vendors**, the Projectathon aimed at the following other points:

- Identify potential issues in the **test tools** and the test plans;
- Identify potential issues in the **basic specifications**;
- Strengthen implementation guidelines (as IHE) and **standards** (as HL7) in the health sector;
- **Communication** about the EPR through on- and offline means (e.g. social media and public guided tours).

Test organisation

General overview

- **Event organisation:** The event was organised by three parties: eHealth Suisse, IHE Suisse and the Federal Office of Public Health FOPH with the technical support of IHE Europe Services.
- **Testing venue:** Testing was organised at [the Eventforum](#) in Bern.
- **Date:** The event started on Monday, September 20th, at 8AM, and finished on Friday, September 24th, at noon. Opening hours were from 8AM to 6PM; testing took place from 9AM to 5PM.
- **Monitors:** A team of fourteen monitors was set up and trained to assist testers and verify the test cases. The monitors owned expertise on EPR specifications. Most of them had served before at one or more IHE European Connectathon or EPR Projectathon. The team was recruited, managed and led by Oliver Egger, who was mandated by eHealth Suisse.



Monitor team of EPR Projectathon 2021

- **Tools:** All legally based EPR profiles and specs were testable, including profiles for the eMedication and mHealth use cases. The FHIR exchange formats eAllergyIntolerances, eVaccination, Transition of Care, Laboratory Order and Radiology Order could be tested for the first time.
- These profiles are not yet legally included into the ordinance to the national EPR. The tests were driven and reported by using the Swiss EPR reference environment, which is another instance of the IHE Gazelle toolbox (<https://ehealthsuisse.ihe-europe.net/gazelle>).
- **Virtual Machine:** All the tools used during the event were grouped in the same virtual machine under the URL <https://ehealthsuisse.ihe-europe.net>. The physical server was brought on site in order to secure the testing and prevent the risk of a loss of internet connectivity.



Technical support team of IHE Europe Services & EPR Staff

- **Network:** The network was managed by a subcontractor of eHealth Suisse (Swisscom Broadcast).

Pink: Kereval

Orange: Monitors

Green: Vendors

Christoph Knöpfel	Oliver Egger
X1	X2
X3	X4
Daniel Kotlaris	Martin Smock

Malo Toudic	Nicolas Baillet
X5	X6
X7	X8
Vincent Hofmann	Souleymane Thiam

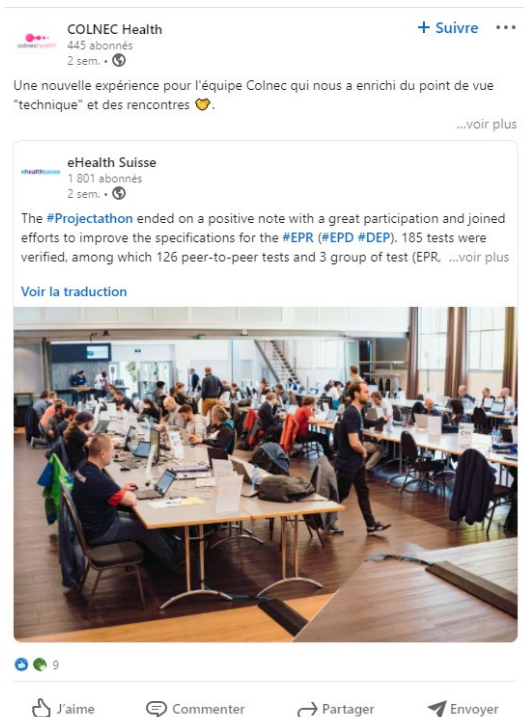
Dmytro Rud	synedra Schweiz AG			iCure SA			
A 12	A11	A10	A9	A8	A7	A6	A5
B12	B11	B10	B9	B8	B7	B6	B5
Pedro dos Santos	Mauro Tschanz	the i-engineers AG			Post CH AG		

Roeland Luykx	Juerg Bleuer	CARA	BFH		Abilis			HIN		
C12	C11	C10	C9	C8	C7	C6	C5	C4	C3	C2
D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2
Annatina Foppa	Patrick Jolo	HCI Solutions AG				CISTEC AG				

Maurice Zysset	Carole Kaiser	x-tention AG					DH HealthCare AG (Dedalus)		Colnec Health		Open Connections	healthinal
E12	E11	E10	E9	E8	E7	E6	E5	E4	E3	E2	E1	
F12	F11	F10	F9	F8	F7	F6	F5	F4	F3	F2	F1	F0
Sébastien Treyvaud	Philippe Heer	Interact Digital Ag				Ad Swiss					Nexus	

Room set up of EPR Projectathon 2021

- **Preparation:** A brochure on the event was available from May 2021 [in German](#) and [in French](#). Information on the event was regularly updated on the website www.epr-projectathon.ch (in German, French, Italian, and English) and posted in the [Projectathon Googlegroup](#). Three webinars regarding the registration process and pre-Projectathon-tests were held by eHealth Suisse and IHE Europe Services in June and July 2021. The pre-Projectathon test phase lasted from July 1st, to September 15, 2021.
- **Fees:** The participant fee per person was 350 Swiss francs and included the participation, catering and the entrance to the social event. There were no additional fees per company or system.
- **Side events:** The “Social Event” took place at the Dampfzentrale in Bern on Thursday during the testing week and offered food and beverage by the Aare river. From Monday to Friday, before and after testing hours, participants could visit the “technical coffee breaks” and listen to short presentations concerning eHealth and EPR issues. This year, the Projectathon team also organized a workshop on the subject “**IG’s with FHIR Shorthand (FSH/Sushi)**”.
- **Communication:** During the event, external guests could visit the Projectathon with a “Guided Tour”, led by eHealth Suisse and IHE Suisse. eHealth Suisse, IHE Suisse and several participating vendors and monitors tweeted about the Projectathon. [Photographs](#) were produced and made freely available.



Tweet from COLNEC Health and eHealth Suisse



Healthinal tweet



synedra IT tweet



Kereval tweet

Participating organisations

A total of 19 vendor organisations from 3 countries (Switzerland, Germany, and remote participation from the US) participated with altogether 67 employees. Most of the companies, namely 13, had already participated at least once in an EPR Projectathon before, be it in Bern or at an IHE Connectathon.

- [Abilis](#)
- [AD Swiss](#)
- [Berner Fachhochschule - Medizininformatik](#)
- [CARA](#)
- [CISTEC AG](#)
- [CERNER](#)
- [Colnec Health](#)
- [DH HealthCare Switzerland AG](#)
- [HCI Solutions AG](#)
- [Healthinal](#)
- [HIN](#)
- [iCure SA](#)
- [Interact Digital AG](#)
- [Nexus](#)
- [Open Connections GmbH](#)
- [Post CH AG](#)
- [the i-engineers AG](#)
- [synedra Schweiz AG](#)
- [x-tention AG](#)

Additionally, two federal institutions' EPR services were remotely available for support at the Projectathon for the UPI and the EPR central query services:

- [Central Compensation Office CCO \(editor of the specific patient identifier number\)](#)
- [Federal Office of Information Technology, Systems and Telecommunication FOITT \(responsible for various central index services such as the community portal index\)](#)

In comparison with previous EPR Projectathons in Bern, the participation rebounded after the Covid-19 outbreak of last year. Moreover, five EPR communities had obtained the certification by the start of the Projectathon and had started their activities. The EPR was also already available to the population in six cantons. This recent development increases the interests of medical IT platforms to integrate the EPR in their own systems.

	2021	2020	2019	2018	2017
Number of organisations	19	16	18	23	16
Number of participants	67	51	82	88	79
Monitors + Technical Support	14+8	15 + 8	17+8	17 + 9	13 + 8
Countries	3	2	3	3	3

Figures of all EPR Projectathon

List of systems

There were twenty-one systems registered at the EPR Projectathon (see table 2). Most of the systems concerned Health Professional Portals, whereby it is notable that primary systems can reference the same actors as a Health Professional Portal.

Organization	System keyword	Components concerned
ABILIS SA	HP-PORTAL_ABILIS_BERN2021	Health Professional Portal
AD Swiss	CCC_AD Swiss_2.0	Community Components
Association CARA	2ND_SYSTEM_CARA_PMP2021	Secondary System
Berner Fachhochschule - Medizininformatik	CCC_BFH_MAG21	Community Components
Bundesamt für Informatik und Telekommunikation	GVT-SERVICES_BIT_1	Governmental Services
Cerner Health Services	TOOL_Cerner_Sept2021	Health Professional Portal
CISTEC AG	HP-PORTAL_CISTEC	Health Professional Portal
DH HealthCare Switzerland AG	HP-PORTAL_Dedalus_2021	Health Professional Portal
HCI Solutions AG	HP-PORTAL_HCI_2021	Health Professional Portal
Health Info Net AG	IdP_HIN_3.5	Identity Provider
healthinal	TOOL_heal_matchbox-order	Health Professional Portal
iCure SA	TOOL_iCure_EHR	Health Professional Portal
Interact Digital AG	HP-PORTAL_ARTS_4_2_3	Health Professional Portal
Midas Services AG	PAT-PORTAL_MSAG_COLNEC_DOC	Patient Portal
NEXUS Schweiz AG	CCC_NX_KIS-NG	Community Components
Open Connections GmbH	TOOL_OC_CROSSREC	Health Professional Portal
Post CH Kommunikation AG / Digital Health	Community_Post_5	Community Components
synedra Schweiz AG	2ND_SYSTEM_synedra_2021	Secondary System
the i-engineers AG	Community_TIE_COPY_0	Community Components
x-tention Informationstechnologie AG	HP-PORTAL_EHR	Health Professional Portal
ZAS	GVT-SERVICES_EPR-ID provider_Bern_2021	Governmental services

Participating systems, Projectathon 2021

Tests performed

Overall view

284 tests were executed during the fourth EPR Projectathon, of which 185 were verified.

	Number of test instances	To be verified	Partially verified	Verified	Aborted	Paused	Running	Failed
Group tests	12	0	3	3	1	0	5	0
Peer-to-peer-tests	198	1	16	126	23	0	28	4
No-peer-tests	74	1	3	56	3	0	10	1
Total	284	2	22	185	27	0	43	5

Executed tests at EPR Projectathon 2021

Peer-to-peer-tests

The largest share of verified tests (about two third, 198 out of 284) concern peer-to-peer-tests with two testing partners involved.

	Nbr of test instances	Started	Completed	Paused	Verified	Aborted	Partial	Failed	Critical
	0	0	0	0	0	0	0	0	0
213, 214, 215	9	0	0	0	8	0	1	0	0
CDA-CH-EMED	13	1	0	0	12	0	0	0	0
CH-AllergyIntolerance	2	0	0	0	2	0	0	0	0
CH-EMED	41	1	0	0	31	5	4	0	0
CH-eTOC	5	3	0	0	2	0	0	0	0
CH-RAD-ORDER	14	6	0	0	6	0	2	0	0
CH-VACD	2	1	0	0	1	0	0	0	0
CH:ADR	2	1	0	0	0	0	1	0	0
CH:ATC	3	0	0	0	0	0	0	0	0
CH:ATNA	35	9	1	0	15	4	2	0	0
CH:CT	17	2	0	0	9	0	0	1	0
CH:HPD	25	5	1	0	10	2	2	0	0
CH:MHD	2	0	0	0	2	0	0	0	0
CH:PDQV3	28	3	0	0	20	1	0	0	0
CH:PIXm	1	0	0	0	0	0	0	0	0
CH:PIXV3	29	6	0	0	8	2	1	0	0
CH:PPQ	21	1	0	0	12	5	0	3	0
CH:RMU	1	0	0	0	0	0	0	0	0
CH:XCA	9	0	0	0	2	0	0	0	0
CH:XCA-I	4	0	0	0	2	0	0	0	0
CH:XCPD	6	0	0	0	3	0	0	0	0
CH:XDS	38	8	0	0	11	1	1	0	0
CH:XDS-I	7	0	0	0	3	0	3	0	0
CH:XDS-MU	1	0	0	0	0	1	0	0	0
CH:XUA	57	2	0	0	18	5	1	1	0
GROUP	11	5	0	0	2	1	3	0	0
RMU	2	0	0	0	1	0	0	0	0
SVS	7	0	0	0	5	0	1	0	0
Total	392	54	2	0	185	27	22	5	0

Executed peer-to-peer-tests at EPR Projectathon 2021



Testing venue

Group tests

12 of the executed tests were group tests where several test partners are involved. This allows realistic and complex scenarios to be simulated, for example the retrieval of a document by a health professional.

Keyword	Test Instances	Started	Completed	Verified	Aborted
CH-RAD-ORDER_Referral	1	0	0	1	0
eMedication Group test 1	3	1	0	1	0
eMedication Group test 2	2	2	0	0	0
HPProvidesDocumentForPatient	2	0	0	1	1
HP_gets_document_Patient_2of3	1	0	0	0	0
HP_gets_document_Patient_3of3	1	0	0	0	0
TCU_Provide_Document_for_patient	2	2	0	0	0

Executed group tests at EPR Projectathon 2021. Columns with zero values (e.g. #TI paused or failed) are not indicated.

Other results

Reported issues

As an outcome of the testing performed during the EPR Projectathon, 17 Jira issues were reported, which is represent a big reduction to the 40 tickets in 2020, concerning:

- Specs (2 tickets)
- Test cases (5 tickets)
- Tooling (10 tickets)

The issues reported are processed by eHealth Suisse or IHE Services Europe.

Maturity levels

The maturity of the profiles, metadata and exchange formats of the Swiss EPR is graded into five levels, depending on their readiness for testing (level 1, 2, and 3) or their verification at test events (level 4 and 5). Through the 2021 EPR Projectathon testing, exchange formats saw the greatest advancement. Specifications for eVaccination (FHIR version), Allergies, Transition of Care and Laboratory Order were for the first time ready at a Projectathon for verification through peer-to-peer testing or simulator tests, but not enough testing was performed to lift them up a maturity level. Radiology Order Specification was tested more extensively and has reached level 4. Meanwhile, the eMedication profiles (Medication Card

document) on CDA and FHIR have reached full maturity (level 5). For the overview of the maturity levels of all EPR profiles, see the [published document](#) on the website of the EPR-Projectathon 2021.

Quality survey

A quality survey was conducted at the end of the EPR Projectathon. Eight people responded to it. The following is a summary of the survey's results:

Motivation: Vendors decided to participate to the EPR-Projectathon 2021 for various reasons, among which eMedication and IHE norms were the most frequently named. Other reasons include testing interoperability with other communities, networking, and get more experience with the EPR Reference Framework.

Satisfaction with registration and communication: Participants were generally satisfied with the registration process and were able to find relevant information in order to decide about participation. Vendors ask for more an introduction for newcomers, as well as more clarity on which data was for which test.

Satisfaction with technical infrastructure: Only half of the people found Gazelle intuitive enough and easy to use, compared to 60% last year. The participants complain about:

- the lack of description concerning prerequisites to tests,
- the number of manipulations required (for tooling),
- the difficulty the correct validator for the correct message,
- the quality of the tooling in the reference environment,
- the difficulty to use Gazelle for new participants

Proposed ameliorations are to:

- integrate RocketChat in Gazelle,
- to improve to HPD Simulator and XDS Simulators,
- to notify more clearly about know issues,
- to link directly to the data rather than to the website where it appears.

Test plan: Over 70% of respondents were happy with the new tests descriptions. Demanded improvements on typos, inconsistencies and precisions in the description between test plan and specifications, a reduction of steps per task.

Opinion on monitors and event management: All participants evaluated the work of the monitors and the management as “very” or “somewhat efficient”. The percentage for “very efficient” is dropping for the third consecutive year. There was some frustrations about the lack of knowledge of the monitors and the delay to schedule a group test. Two critics concerned the inconsistency of the Covid-19 armbands and the lack of communication between firms. Concerning the armbands, the comment mentions that having everyday identical armbands and moving around in a building where external people could enter defeated the purpose of the Covid Certificate. Another participant criticised the poor communication between participants, who preferred to write messages on RocketChat than to talk directly to each other, and didn't warn in advance, that they wanted to run a test again another participant's system. On the positive side, the location in Bern is still appreciated, as well as the organisation, generally including the Covid-19 protection measures.

As improvement ideas, participants suggest an introductory session to the aims of the Projectathon, a better attendance of key players, tests with multiple actors, and clearer prerequisites in the test cases.

Market readiness: According to the participants, 28,6 % of the tested products are ready to enter the market, which represents a largely lower number than in 2020. 42,9% of systems would be ready within six months, and another 28,6% within one year. .

Catering and side events: Almost all respondent participated in a technical coffee break. They usually liked it, although one person mentioned that the conversation only went one way. The social event and Rocket Chat received similar praises. The catering and services at the testing venue were very much appreciated. Most people appreciated the Covid-19 protection measures, with the exception of the participant, who criticised the use of armbands and fever measurement.

General feedback: The participants appreciated the f2f format, the venue, the parallel activities and the general organisation of the Projectathon. The main critics are aimed at the description of the tests, lack of communication about bugs with the simulators and validators, and the lack of knowledge from somemonitors. A newcomer also insists on having an introduction to the aims of Projectathon and the use of Gazelle.



Conclusion

Altogether, the three organising parties eHealth Suisse, IHE Suisse and the FOPH consider the EPR Projectathon 2021 **a rather successful event despite the current organisational challenges due to Covid-19**:

- The **goals** as described on page 2 have been **reached to a great extent. Although mHealth and other exchange formats were on the list of testable profiles, they were not tested during the Projectathon itself.**
- Compared to the three previous Projectathon, **a progress** could be observed, particularly concerning the exchange formats, some of which were new for testing. The participating companies with their products as well as the reference environment tooling and the specifications have made an enormous development since 2017, making the test processes **run smoothly** throughout the week.
- Year after year, the concept of a shared testing venue is confirmed by the small but efficient community created by the vendors.
- The number of the **reported issues** mainly concerned the newer specifications and **none were critical.**
- There were **slightly more tests** than last year, due to an increase in the participation. It allowed a decisive work on the basic EPR profiles and the exchange formats.
- According to the survey, the **participant's satisfaction** with the event was generally high, though some inconsistencies in the test descriptions and the lack of introduction to the event were noted.

Hence, the responsible parties make the following **conclusions regarding the further steps**:

- The technical basics for the **technical certification** of EPR communities proved to be stable, both in terms of underlying specifications and in terms of reference environment. Some newer specifications target the technical improvement of the EPR, thus allowing vendors to stay on top of the coming developments. Unfortunately, some of these specs lacked extensive testing.
- The Projectathon series will be continued to further enhance interoperability around the EPR system and attract additional vendors (e.g. primary systems).
- **In 2022 the EPR Projectathon and the IHE Connectathon will take place from 12th to 16th September 2022 in Montreux.** The Swiss eHealth Summit will most probably also be held at the same location during that week.
- The focus of the 2022 test week will be decided at a later point. Possible topics are to further test mHealth and FHIR exchange formats.
- In addition, **online testing** is permanently available on the reference environment in Gazelle. Vendors should make use of this opportunity. The communication via the **Google group *epd_Projectathon*** will be continued. For people wanting to join, please [contact the group managers](#).

According to the satisfaction survey, the organisers will keep most of the event elements **as hitherto** (e.g. food, technical coffee breaks, f2f event). **Changes to be considered** concern mostly the addition to an introductory course for new comers, as well as more precise and consistent test descriptions.